

# Historical Demography in the United States

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In 1977, the Population Association of America designated Louis Henry the first recipient of its prestigious Irene B. Taeuber Award for his development of family reconstitution twenty years earlier. This method involved the linking of family members to one another and over time through their appearances in ecclesiastical records of baptisms, marriages, and burials, facilitating the analysis of demographic processes in the past and thereby inaugurating the field of historical demography. Family reconstitution quickly produced a rich account of historical population dynamics in much of Europe, but was of limited utility in the United States. Religious freedom, the lack of an established state church, high levels of mobility, and racial and ethnic heterogeneity contributed to a relative absence of church records, and most of the country lacked civil vital registration until the early twentieth century. By necessity, historical demography in the United States has required the development of alternative sources and methods. Given the relative scarcity and short time depth of historical records, the field has also been less focused on the period before the demographic transition and more open to the study of populations outside its borders. Over the last fifty years, historical demographers in the United States have contributed to a rich body of knowledge about population and population change not only in the U.S., but also in Europe, Asia, and Latin America.

Historical demography is motivated by the complementary and competing goals of universal knowledge about demographic processes and geographically- and temporally-situated knowledge about particular demographic regimes. While the early work of European scholars focused on pre-transition populations and Malthusian demographic patterns, demographers in the United States investigated the causes of fertility decline during Europe's demographic transition. Beginning in 1963, the European Fertility Project, designed and headed by Princeton University demographer Ansley J. Coale, combined in-depth study of fertility in each European nation with comparative analysis in an attempt to reveal universal deter-

minants of fertility decline. Monographs presented research on Belgium, France, Germany, Great Britain, Italy, Russia, Portugal, and Spain; a final volume synthesized their findings to draw larger conclusions (Coale and Watkins 1986).

Results from the project challenged some of the foundational assumptions of the demographic transition theory that motivated it: a sharp break between demographic behavior in pre-modern and modern societies, uniform high fertility among pre-transition populations, and industrialization and modernization as stimuli of fertility decline. No clear relationship between fertility change and mortality decline or economic development emerged from the project. Instead, cultural factors, as proxied by language and religion, proved more salient than socioeconomic differences in determining the timing and pace of demographic change (Knodel and van de Walle 1979). These findings indicated more complex spatial and social diffusion processes and suggested that the intimate determinants of observed fertility patterns are embedded in social structures and cultural systems that mediate or inform the economic calculations of childbearing.

The suggestion that demographic behavior reflects local values and circumstances opened the door to the study of demography as history. Beginning in the 1960s, U.S. historians delved into the analysis of surviving historical demographic evidence, gleaning from it information about the social, cultural, and economic institutions that produced the observed demographic patterns, and information about the role of those demographic patterns in maintaining particular social, cultural, and economic institutions (Smith 1982). The first products of this marriage between demographic analysis and social history were detailed studies of colonial communities, their populations painstakingly pieced together through family reconstitution. The earliest studies focused on religiously-homogeneous communities in Massachusetts — such as Plymouth (Demos 1970), Andover (Greven 1970), and Hingham (Smith 1973) — with relatively complete demographic coverage from church registers, civil records, and published genealogies. Other locales also came under the microscope of historical demography — particularly in the Chesapeake (Walsh and Menard 1974; Rutman and

Rutman 1984) — but were more difficult to reconstruct as a result of relatively poor documentation. Wells (1971, 1972) leveraged the meticulous record keeping of the Quakers to examine their family dynamics in several parts of New York, New Jersey, and Pennsylvania.

While these studies described isolated communities in intimate detail, comparative and synthetic works identified both the regional differences that distinguished colonies from one another and the similarities across colonies that suggested distinctive American patterns of nuptiality and fertility, and even child naming, unlike the English ones that had been left behind (Smith 1972; Rutman 1986; Wells 1992). By comparing U.S. data to the expectations produced by European-derived theories, these works refined such concepts as the northwest European family model (Hajnal 1965; Laslett 1977) and related features of American population history — notably early marriage, high fertility, and rapid population growth — to specific historical American conditions: land and resource abundance; labor scarcity and slave labor; continuous immigration, first from Europe and then from other parts of the world; and internal migration from the more densely populated East to an ever-receding western frontier (Smith 1979a, 1980).

The demographic effects of these distinctive features of American history, however, are resistant to analysis through family reconstitution, which has been largely limited to non-migratory families in small agricultural communities, offers little information other than the dates of vital events, and increases in difficulty as the population becomes more heterogeneous (Vinovskis 1978). Migration — a key element of American life from the beginning — affects the timing and incidence of marriage, childbirth, and death (Norton 1973; Adams and Kasakoff 2000; Mineau, Bean, and Anderton 1989), but is poorly recorded in historical sources. Without knowledge of migration dates, those who disappear from a community's records must be excluded altogether from family reconstitution samples, biasing analysis of nuptiality, fertility, and mortality (Smith 1979a; Kasakoff and Adams 1995; Hacker 1997).

After the colonial period, the U.S. Census provides a more representative source for analysis of population processes and their social and economic determinants at both the

aggregate and individual levels. The United States took its first decennial census in 1790, and enumerations increased in complexity over time, as more questions were added and new schedules were developed for agriculture, manufacturing, mortality, social statistics, and other topics. Census schedules are themselves valuable historical documents as they reflect contemporary concerns: racial categories for persons of mixed black and white ancestry in the late-nineteenth century were informed by the race science of the time, and detailed questions about nativity and ethnicity in the early twentieth century signal anxiety about the changing origins of immigrants (Ruggles and Menard 1995). The Census Office (later Bureau) published population summary statistics at various geographical levels for each census, and these too increased in size and sophistication. Results of the 1850 census, for example, were published in 2,165 pages of reports; the 1890 census required 26,408 pages (Anderson 1988, p. 242). Researchers in many fields have long relied on the complete or partial historical series of aggregate census data to describe the “progress of the nation” and forecast population growth (Rossiter 1909; Pearl and Reed 1920), and in the last fifty years digitization has facilitated new types of analysis. A collection of census data for 1790-1970 at the state and county levels was one of the first machine readable datasets archived by the Inter-university Consortium for Political and Social Research (ICPSR), and has featured prominently in hundreds of studies. Haines (2010) has recently revised, supplemented, and harmonized this dataset, which now continues through 2002.

The United States has preserved most original manuscript returns for its censuses, permitting the creation and analysis of individual-level public use census microdata samples (PUMS). The first PUMS were 1-in-100 random samples of the 1960 and 1970 censuses compiled by the Census Bureau. Although the high cost of computing limited their use, the samples proved popular with social scientists, who capitalized on the hierarchical structure of the data to create their own variables, produce customized cross-tabulations, and employ multivariate and multilevel analytic methods. The Bureau has constructed PUMS for each subsequent census, and by 1991 historians and demographers at U.S. universities had also

produced PUMS for the censuses of 1850, 1880, 1900, 1910, 1940, and 1950 (Ruggles and Menard 1995). Census questions have varied over time, however, and most of these samples employed different record layouts, coding, and documentation, posing a challenge to the study of historical change (Gratton et al. 1997).

To remedy this problem, Ruggles launched the Integrated Public Use Microdata Series (IPUMS) project. With funding from the National Institutes of Health and the National Science Foundation, his team at the Minnesota Population Center added samples for 1860, 1870, 1920, and 1930, and harmonized codes, standardized record layouts, and integrated documentation across all years. IPUMS now provides census microdata for 1850 to the present (with the exception of the 1890 census, the manuscripts for which were lost in a fire) at no cost through a web-based extraction system (Ruggles et al. 2010). While samples for censuses after 1930 have been stripped of information that could jeopardize the anonymity of individuals in the sample, those for earlier censuses were not protected by confidentiality laws, and include detailed geographic information and names, which have proven useful in mapping, spatial analyses, and record linkage. IPUMS also includes several unique samples, such as oversamples of smaller racial and ethnic groups in some years and a 100% sample of the 1880 census, produced in collaboration with the Church of Latter Day Saints (Ruggles et al. 2010). Individuals in IPUMS samples for 1850-1870 and 1900-1930 have been linked to their records in the full-count 1880 sample, providing two observations for each person and allowing for assessment of change in individual circumstances over the life course (Ruggles 2011). IPUMS-International provides similarly-harmonized census samples for 185 censuses in 62 countries, allowing for comparison across both time and place (Ruggles et al. 2003).

Because census microdata include information about household composition, the IPUMS database has been particularly useful for the study of change in household structure and living arrangements. Previous cross-sectional studies of the correlates of various household types had largely been limited to a single point in time (Elman 1996; Smith 1979b). The availability of IPUMS, however, has greatly reduced the cost in time and effort of performing

consistent cross-sectional analyses over several censuses, revealing changes in the determinants of family forms and processes and allowing historians to link such changes to long- and short-term historical transformations, such as the secular decline in agricultural employment, the increase in women's opportunities in the paid labor force, and the more abrupt but lasting effects of war (Merchant et al. 2012). Scholars have used these data to examine racial and ethnic intermarriage (Gullickson 2006, Pagnini and Morgan 1990), the relatively sudden mid-century decline in co-residence between elderly persons and their adult children (Ruggles 2007; Gratton and Gutmann 2010), the near-simultaneous drop in the normative age of young adult home leaving (Gutmann et al. 2002; Stanger-Ross et al. 2005), and the rapid increase in divorce in the last decades of the twentieth century (Ruggles 1997).

The availability of microdata has also been critical in the analysis of mortality and fertility in the period before the vital registration system was complete. Although the United States had the world's first modern census, a national vital registration system was not completed until 1933. Much of what we know about nineteenth century mortality comes from Massachusetts, a small state in the Northeast that established the first death registry in 1842 (Vinovskis 1972). Mortality in Massachusetts, however, was likely atypical: the state was characterized by much higher levels of urbanization, industrialization, and immigration and much lower levels of nuptiality and fertility than the nation as a whole (Hacker 2010), and these factors correlate strongly with mortality (Hauntaniemi; Swedlund, and Anderton 1999; Haines 2001). With historical microdata, however, scholars can estimate vital rates using indirect methods pioneered by William Brass and others for demographic analysis in developing countries lacking reliable vital registration (Brass et al. 1968). Census questions about the number of children a woman had ever borne and the number still surviving in 1900 and 1910 have allowed demographers to estimate historical infant and child mortality rates and racial disparities therein (Preston and Haines 1991). They also facilitate analysis of cohort patterns of marital fertility control (David and Sanderson 1987), while own-child methods permit the estimation of age-specific fertility rates as early as the 1840s (Tolnay et

al. 1982; Hacker 2003).

Using these methods, historical demographers have added nuance to our understanding of the early fertility decline in the United States. Declines in aggregate child-woman ratios beginning in the early nineteenth suggested that the onset of fertility transition in the U.S. occurred earlier than in any country other than France and prior to significant industrialization or decline in mortality. Early cross-sectional research emphasized the strong positive correlation between county-level child-woman ratios and proxies of land availability, suggesting that couples adjusted their marital fertility in response to the costs of bequeathing land to their children. Lower child-woman ratios in the Northeast — where new farms were more difficult to purchase — than on the western frontier — where land was inexpensive and plentiful — were taken as evidence that fertility had declined as land grew scarcer and more expensive (Yasuba 1962; Easterlin 1976). However, more recent studies using census micro-data have attributed early nineteenth-century declines in child-woman ratios to changes in mortality and nuptiality rather than marital fertility, and have located the beginning of the marital fertility decline after the Civil War (1861-1865) (Hacker 2003). Historical demographers have also begun to untangle the spatial and temporal dimensions of fertility differentials and change, demonstrating that fertility responded to the environmental characteristics of land as well as its availability during the period of frontier settlement, but that east-west fertility differentials began to converge as fertility declined everywhere in the first decades of the twentieth century (Gutmann et al. 2012). Returning to county-level child-woman ratios with new methods of spatial analysis, scholars have charted the diffusion of fertility decline over time and across space, and identified the structural facilitators and impediments to that diffusion (Haines and Hacker 2011). The rise of spatial analysis has revived interest in aggregate-level census data (Gutmann et al. 2011), which are now available at a number of scales, along with historical boundary files for each, through the National Historical Geographic Information System project at the Minnesota Population Center (Fitch and Ruggles 2003).

The long series of census data has facilitated the study of historical change at the aggregate level, but does not track change in the lives of individuals. To move from the historical scale to the life course, historical demographers have created individual-level longitudinal datasets and adapted statistical methods to their analysis. Longitudinal data follow individuals and families over time, and their analysis reveals causal relationships between individual- and family-level characteristics and various demographic processes (Alter et al. 2012). Population registers, kept in several localities in Europe and Asia, but not in the United States, are ideal for longitudinal analysis as they provide information about population stock and flow, recording the residents of a community in their household contexts and frequently updating those records. U.S. historical demographers have worked with population registers in Belgium (Alter 1988) and China (Lee and Campbell 1997) and are involved in the Eurasian Population and Family History Project, a comparative study of five rural pre-transitional communities in Europe and Asia well documented by longitudinal sources. Initiated in 1994 by Akira Hayami, the Eurasia Project aims to examine the relationship between population processes — mortality, fertility, nuptiality, and migration — and economic stress posed by Malthus in the late eighteenth and early nineteenth centuries (Bengtsson, Campbell, and Lee et al. 2004; Tsuya, Feng, Alter, Lee et al. 2010). The standardization of population register data across locales allows the use of the same discrete-time event history models for each, so the significance and direction of effects at the individual, household, and community levels can be directly compared. Like the Princeton Project before it, the Eurasia project demonstrates that, although birth and death are universal biological processes, behavioral responses to exogenous economic shocks are contingent on local social structures and cultural systems.

Although the United States lacks the detailed historical population registers found in the Eurasia study communities, scholars have created longitudinal datasets by linking individual-level information between various sources, though these datasets are limited to specific groups or particular locales. These locales include six Texas counties, for which Gutmann and

his colleagues at the University of Texas Population Research Center digitized and linked censuses and civil and ecclesiastical records for the study of fertility, mortality, nuptiality, and migration between 1850 and 1910 (Gutmann and Fliess 1993). Other loci of longitudinal data construction and analysis are Boston and Newburyport, Massachusetts, where Knights (1971) and Thernstrom (1964) linked individuals between censuses, city directories, and administrative records to track residential and social mobility in the nineteenth century, and Philadelphia, the subject of the Philadelphia Social History Project. This project, a major undertaking of the University of Pennsylvania's Population Studies Center in the 1960s, collected and linked demographic and economic data from various sources to examine the individual-, household-, and neighborhood-level determinants of social mobility in a mid-nineteenth-century urban industrial area, with a particular focus on the lives of immigrants and African Americans (Hershberg 1976).

Historical demographers have gotten remarkable mileage out of two longitudinal datasets representing atypical groups: the descendants of the Utah pioneers, and Union Army soldiers in the American Civil War. Individual-level longitudinal data about the descendants of the Utah pioneers (Bean et al. 1980), first gathered by the Utah Genealogical Society and now maintained as the Utah Resource for Genetic and Epidemiologic Research, have proven useful for analysis of aging and mortality, and for genetic and epidemiologic research, as the database includes death records and is deep and broad enough to link family members both within and between generations, and large enough to include a substantial sample of centenarians (Smith et al. 2009). The dataset is also a rich resource for fertility analysis, and has provided evidence that the decline in marital fertility in the United States was effected through increased spacing between births as well as the cessation of childbearing when a target number of offspring was reached (Bean, Mineau and Anderton 1990).

Analysis of genealogical data for New England families also indicates an increase in the length of birth intervals beginning in the late eighteenth century (Main 2003). In contrast to locationally-defined datasets, genealogical records follow family members from place to

place, and have provided valuable information both about migration itself and about the relationship between migration and other demographic processes (Adams and Kasakoff 1984).

The Early Indicators of Later Work Levels, Disease and Death, a joint project of the University of Chicago and Brigham Young University under the direction of Robert Fogel, follows a sample of nearly 40,000 white and over 6,000 black soldiers mustered into the Union Army from enlistment through their death or discharge from the army and from their entrance into the federal pension system to death. The combined datasets — including military service records, pension records, physicians' reports, and censuses — are quite rich, serving as the basis for studies of the impact of early life conditions on later life morbidity and mortality (Fogel 1993; Costa 2003a; Lee 2003) and the social circumstances of aging and retirement at the turn of the twentieth century (Costa 1995, 2003b). One unique feature of this dataset is the inclusion of anthropometric information about the soldiers, allowing for the analysis of the relationship between various measures of body size, health, mortality, and socioeconomic circumstances (Haines 1998; Lee 2005; Costa 1993, 2004). Research on historical stature, pioneered by economists Richard Steckel and John Komlos, has been a hot topic in historical demography and economic history (see Steckel 2009 for a recent summary), as researchers investigate the interrelationships between health and wellbeing, nutrition, disease, mortality, and demographic behavior.

The Early Indicators database and the Philadelphia Social History Project are valuable sources of longitudinal data for African Americans in the second half of the nineteenth century, but there is no equivalent for the antebellum period. Free blacks were always included in the federal census, but the conditions of chattel slavery present both challenges to and opportunities for demographic analysis of the slave population. Considered property rather than people, African American slaves were enumerated in separate census slave schedules, listed with their owners rather than their families, and identified only by number (Anderson 1988, p. 39). What we know about their history comes largely from financial documents — shipping inventories, bills of sale, wills, and tax and probate records. These sources

have proven quite useful for estimating population size and vital rates and drawing inferences about nuptiality and family forms in various parts of the United States, contributing to knowledge both of demography and of the lives of African American slaves (see Walsh (2000) for a review of this voluminous literature). Scholarship on the indigenous population of the U.S. has been less readily forthcoming, likely because the sources of historical demographic data are even sparser for American Indians, who were neither enumerated in the census nor given a price tag. Valuable studies include Thornton's (1987) reconstruction of the indigenous population since 1492, demographic analysis of five major tribes by Shoemaker using data collected by the 1900 and 1910 censuses (2001), and estimates by Hacker and Haines (2005) of the impact of federal assimilation policies on infant and child mortality. As the United States expanded westward, it not only displaced the indigenous population, but also absorbed a large part of Mexico, and U.S.-based scholars have led in the analysis of historical population dynamics of Mexico and other parts of Latin America (McCaa 2000; Metcalf 2005). Such work has not only been a valuable addition to the historical record of Latin America, but has also shed light on the movement of population within the Western Hemisphere and particularly from Mexico to the United States (Gutmann et al. 2000; Gratton and Merchant 2013).

International migration, both voluntary and involuntary, has always been a major component of population growth in North America, drawing individuals and families from throughout the world. Aggregate census data have proven useful for charting the changing size and composition of the foreign-born portion of the U.S. population. Census microdata have allowed historical demographers to compare fertility rates between various groups of immigrants (King and Ruggles 1993; Morgan et al. 1994), and to examine the effects of immigration on educational and occupational attainment, socio-economic circumstances, and family structure (Gratton, Gutmann, and Skop 2007; Gratton and Gutmann 2010). While these sources provide information about immigrants once they are in the United States, an exciting new source for the history of immigration is the North American Population Project at the

Minnesota Population Center, which integrates microdata for countries on both sides of the Atlantic, allowing for the tracking of individuals as they migrated from one to the other, and sometimes back, and for analysis of the relationship between individual characteristics and immigration and/or remigration (Ruggles et al. 2011).

Although young U.S. historians eagerly pursued demographic data and techniques in the 1960s, historical demography is today at the margins of history departments, which have since turned to the analysis of culture, text, and language, relegating quantitative historical analysis to economics departments. The attention of demographers, meanwhile, has largely turned to more recent developments, such as fertility decline in the global south and the second demographic transition in the global north. Nonetheless, there are many indications that the future of historical demography is bright. Although the historical records of the United States might not be as detailed and complete as are those of other countries, this challenge has been a productive one, stimulating the creation of databases and development of methods that combine available sources of information and make them speak in meaningful ways. Falling computer costs and the proliferation of user-friendly statistical programs have reduced the barriers to historical demographic analysis and increased the potential for accelerating discoveries, encouraging scholars to continue posing and answering new questions about the past.

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